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NEW HAMPSHIRE COLLEGE
AGRICULTURAL EXPERIMENT STATION

Experiments
WITH
TOMATOES AND POTATOES

BY F. WM. RANE

NEW HAMPSHIRE COLLEGE
OF
AGRICULTURE AND THE MECHANIC ARTS
DURHAM

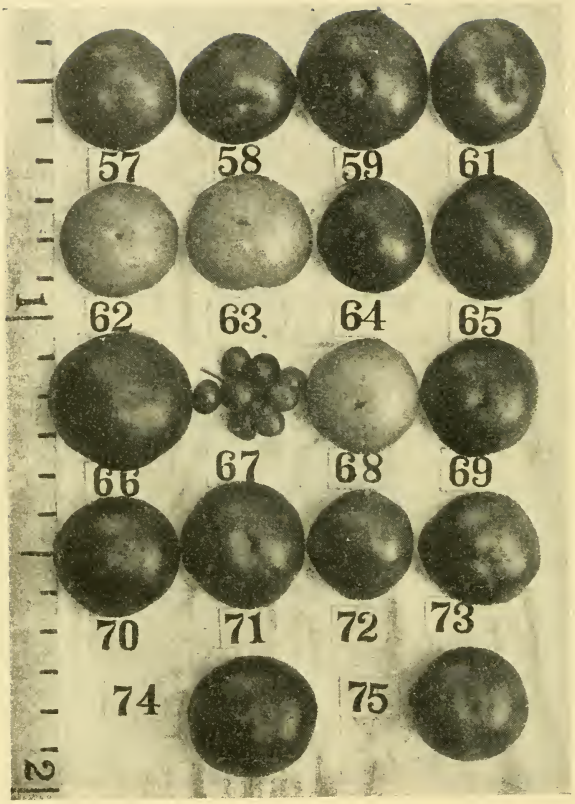

FIG 25. VARIETIES OF TOMATOES.

57. Table Queen.
58. Early Ruby.
59. Matchless.
61. Comrade.
62. Lemon Yellow.
63. World's Fair.
64. Earliest Market.
65. State Fair.
66. Improved Trophy.
67. Burbank Preserving.
68. Golden Champion.
69. Fordhook Fancy.
70. New Combination.
71. Best of All.
72. Seedling.
73. Freedom.
74. G. A. R.
75. La Cross.

TOMATO GROWING

BY FRANK WM. RANE

One little realizes to what an extent the tomato is used. The canning industry alone is enormous, and although factories are increasing, nevertheless the prices for canned tomatoes are higher at present than for a number of years. The catsup-making industry is continually increasing, and yet the demand equals the supply. Even green fruit is in fair demand in the fall of the year, and in the local markets in New England is nearly as remunerative as the ripe fruit. Nearly every family nowadays makes green tomato pickles, chowchow, etc. During the past year the green fruit was in equally as good demand as the ripe and sold for the same prices from our grounds. While nearly every New England garden has tomatoes in it, and they are comparatively easy to raise, yet we are yearly expending thousands upon thousands of dollars, which for the most part go to other sections of the country, for this vegetable. Not only is this expenditure made by the rich but also by the poor. Where is there a country store that does not sell canned tomatoes and catsup? The retail price of canned tomatoes at present is at the rate of 12½ to 15 cents, while a half dozen years ago it was eight cents. As a people, it is believed we too easily accustom ourselves to getting a thing in the easiest way and do not consider the cost. It is all well and good for the city people to purchase canned goods if they haven't room to raise them, as the expense of purchasing the fruit and the work in canning the same perhaps would not come far short of the expenditure for the commercial product; but for the great number of families who have their own garden spot, and especially our farm homes, to depend upon the canned goods and bottles does seem in a degree a useless expenditure.

Farmers' Bulletin No. 76, "Tomato Growing," United States Department of Agriculture, is a pamphlet which should be in the hands of every person interested in this vegetable. This bulletin is sent free of charge to any one desiring it. The following extract from this bulletin is given in order to show the importance of the canning industry alone:

"The tomato is grown more largely for canning than any other vegetable used for this purpose. The total annual pack of the entire country now averages nearly 5,500,000 cases of 24 cans each, and the area required to supply the canneries is estimated to exceed 300,000 acres. The bulk of this crop for this purpose is, however, grown in a few states, Maryland leading, with over 1,000,000 cases, and New Jersey following, with from 500,000 to 700,000 cases. The four states of Maryland, New Jersey, Indiana, and California produce about three quarters of the entire pack, and New Jersey and Maryland produce nearly one half. The other states of considerable production are, in their order, Delaware, Missouri, Ohio, Virginia, and Iowa. It is thus observed that this crop is adapted to a wide area and is an industry of very considerable importance."

The conditions for our growing this crop in New England do not differ in any respect excepting in the effect of the climatic conditions. On this account, however, the question of varieties especially for New Hampshire is an important one. In the season of 1896 we made a test of fifty-six varieties, the results of which were published in Bulletin No. 42. A photograph of each variety was therein reproduced; also, besides yield per plant and average weight of fruit, a description of each variety was given. From our test at that time we concluded that the varieties best suited to our conditions are those having an early maturity, ripening the bulk of their fruit by September. After discarding those thought to be of little value, due to various reasons, and adding the new introductions each year, we find we now have grown eighty varieties on our trial grounds.

During the past season our test was limited to the newer introduction, together with a few varieties, also new the year before. The results of this test are shown in Table I, the data

being taken from the resultant yield of ten plants of each variety.

TABLE I.— VARIETIES GROWN IN 1899.

Number.	Variety.	Average yield of ripe fruit per plant.	Date of first ripe fruit.	Average weight of ripe fruit.	Average weight of green fruit per plant Sept. 22.	Seedsman.
		lbs.	Aug.	oz.	lbs.	
57	Table Queen	15.2	8	4.2	5.4	Henderson.
58	Early Ruby	6.4	5	4.9	5.6	"
61	The Comrade	14.7	8	3.6	5.3	Gregory.
66	Improved Trophy	11.6	14	5.6	6.5	Ferry.
69	Fordhook Fancy	4.0	5	3.4	2.7	Burpee.
70	New Combination	13.7	12	4.1	4.3	"
71	Best of All	17.9	12	5.1	7.2	Weeber & Don.
72	Seedling	12.7	5	2.6	4.8	Johnston & Stokes.
73	Freedom	6.5	5	3.5	3.0	Henderson.
74	G. A. R.	5.7	5	4.1	4.8	Gregory.
75	La Crosse Seedling	5.3	8	5.9	5.6	Salzer.
76	Ferris Wheel	8.4	12	6.7	2.3	"
78	The Early Bird	9.1	3	2.3	1.8	Johnston & Stokes.
79	Yellow Prince	2.8	20	3.5	4.3	Livingston.
80	Enormous	3.9	14	7.3	3.5	"

In Table II are given the varieties grown in 1898; also, the average yield is shown in the right hand column.

From these tables, through comparison with those varieties as commonly grown in the various sections of the state, a fair opinion can be had as to their productivity, earliness, and size. If it is found that any of the varieties therein seem to give better results, a person can easily satisfy themselves by testing a few plants of the same. The accompanying figures contain a photograph of a single specimen of each of the varieties from

57 to 75 inclusive. For an illustration of the varieties from 1 to 57 consult Bulletin No. 42, February, 1897.

TABLE II.—VARIETIES GROWN IN 1898 AND BEFORE.

Number.	Variety.	Average yield of ripe fruit per plant.	Date of first picking.	Average weight of ripe fruit.	Average weight of green fruit per plant.	Average yield of ripe fruit per plant for two or more years.	Seedsman.
		lbs.		oz.	lbs.	lbs.	
7	Ten Ton	9.1	Aug. 30	6.9	18.7	9.0	Landreth.
10	Dwarf Champion	4.3	30	4.3	5.8	7.6	Livingston.
12	Early Acme	7.9	Sept. 3	5.0	17.2	9.5	"
13	Stone	12.9	Aug. 30	4.8	15.2	10.9	"
14	Beauty	10.2	30	5.2	11.6	10.7	"
15	E. Michigan					12.6	Ferry.
16	Optimus	5.7	Aug. 30	5.2	13.4	7.2	"
17	No. 105	6.7	Sept. 3	5.3	17.2	7.8	Johnston & Stokes.
18	New Liberty Bell	9.4	13	5.6	21.7	9.9	" "
19	The Fortune	9.6	3	7.7	13.8	8.8	" "
20	Brinton's Best	13.9	Aug. 30	7.0	19.4	12.6	" "
21	Ignotum	16.1	30	6.2	16.5	12.1	" "
24	New Yorker	9.5	30	4.3	15.1	8.3	Thorburn.
25	The Waldorf	6.3	Sept. 3	4.4	16.4	8.2	"
26	Autocrat	9.6	Aug. 30	5.3	20.4	9.6	"
27	Democrat					8.6	"
28	Conference	10.1	Aug. 26	3.0	14.1	10.3	Farquhar.
29	Faultless E	9.5	26	4.8	15.1	9.1	"
30	Bright and Early	13.6	26	2.7	11.9	14.9	"
31	President Cleveland	11.0	26	4.0	15.8	13.7	"
32	Crimson Cushion	5.4	26	8.0	10.9	10.1	Henderson.
34	Belmont	12.1	15	4.8	11.9	14.3	Breck.
35	Acme	14.3	26	4.3	19.4	11.4	"
37	McCullon's Hybrid	8.5	26	6.7	28.9	9.9	Vick.
38	Puritan					10.4	Rawson.
39	County Fair	6.7	Aug. 15	5.3	5.7	7.6	Buckbee.
40	Imperial	7.6	Sept. 6	5.7	14.9	9.2	Burpee.
41	Fordhook First					9.7	"
42	Chenery's Early					10.8	Sch. & Fottler.
43	Long Keeper	14.6	Aug. 26	4.8	17.8	13.1	"
44	Red Cross	7.0	26	5.5	14.1	9.6	"
45	Red Bird	8.3	26	5.6		11.1	Cooke.
47	Morning Star					12.0	Salzer.
48	Bright and Early	11.9	Aug. 26	2.2	15.3	12.8	Dreer.
49	Bond's Early Minne-	17.1	15	3.6	14.4	14.3	"
51	First of all.....[sota	5.7	26	4.4	2.0	9.4	May.
55	Perfection	13.3	26	5.4	19.8	11.0	Barnard.
56	Dwarf Champion	8.2	26	4.6	6.0	5.8	Biedermann.
57	Table Queen	13.8	31	4.1	9.7	14.5	Henderson.
58	Early Ruby	15.2	26	4.2	6.2	10.8	"
59	Matchless	14.4	31	6.7	18.0	14.4	Burpee.
61	The Comrade					14.7	Gregory.
65	State Fair	5.7	Aug. 26	8.2	4.2	5.7	Buckbee.
66	Improved Trophy	5.0	26	8.7	13.6	8.3	Ferry.
68	Dwarf Golden Cham-	6.1	26	4.2	5.4	6.1	Burpee.
72	Seedling.....[pion	16.6	31	6.5	11.6	14.6	Johnston & Stokes.
73	Freedom	7.3	31	4.2	11.3	6.9	Henderson.
74	G. A. R	6.6	31	6.2	22.6	6.2	Gregory.

NOTES ON VARIETIES

57. *Table Queen* (Peter Henderson & Co., New York). Fine, large, smooth, round to flattish fruit. Color purplish crimson. Tall spreading vines. Few fruit crack more or less about the stem.

58. *Early Ruby* (Henderson). Large spreading vines, heavily fruited. Light red color. The fruit was inclined to be ribbed, but was fairly early and good size.

59. *Matchless* (W. Atlee Burpee & Co., Philadelphia). Fine, large, round, smooth, red fruit. Vines large, spreading, and

FIG. 26. A PICKING OF MATCHLESS.

well filled. Very desirable for market. See accompanying figure of the fruit just as it averaged from the vines.

61. *Comrade* (J. J. Gregory & Son, Marblehead, Mass.). Vines very thrifty, stem long and erect. Leaves medium in size. Fruit medium size, mostly smooth and round. Color medium red.

64. *Earliest Market* (H. W. Buckbee, Rockford, Ill.). Plants very strong. Fruit medium size but cracks badly about the

stem. Some large and irregular. Color crimson. Undesirable.

65. *State Fair* (Buckbee). Round, mostly smooth and regular fruit. Medium size. Most all fruit cracks star shape at stem end.

66. *Improved Trophy* (D. M. Ferry & Co., Detroit, Mich.). Fine, large, round, deep red variety. Strong plants, regular in shape. A very desirable variety for market. See the accompanying figure of this fruit.

67. *Burbank's Preserving* (Burpee). Small, round fruits which grow in a large cluster and are very desirable for preserving. The plants are very compact and contain numerous clusters of fruit; also large, curly leaves. See illustration.

FIG. 27. SAMPLE OF IMPROVED TROPHY.

68. *Dwarf Golden Champion* (Burpee). Strong, erect plants, well laden with smooth fruit. Medium size fruit, very regular and fine. Color yellow. A desirable yellow variety.

69. *Fordhook Fancy* (Burpee). Dwarf purple variety. Fruit medium size, smooth and round. Vines potato-leaved and very dense foliage. Did not give very satisfactory returns under ordinary conditions.

70. *New Combination* (Burpee). Vines rather stalwart. Leaves large and thick, almost too dense. Fruit medium size, usually smooth and round; a small per cent irregular. Color, some medium red, others purple. Fairly productive.

71. *Best of All* (Weeber & Don, New York City). Growth of vines very rank. Leaves medium to large; foliage dense. Fruit medium to large, round in shape. Color deep red. A very good tomato.

72. *Seedling* (Johnson & Stokes, Philadelphia). Strong, growing vines, well branched and containing many clusters of purple fruit. The fruit is below average in size and borne in clusters of from three to five, and are very smooth, regular, and round.

In season of 1897 it cracked more or less about stem, but did not in 1899. Perhaps a good forcing variety. A great bearer, and where large fruit is not necessary, very desirable.

73. *Freedom* (Henderson). Similar in many respects to No. 72, but are red in color and a little larger. Were very promising in 1898, but not so in 1899.

74. *G. A. R.* (Gregory). Strong, large plants. Fruit light red in color, mostly smooth and of fine appearance. The accompanying figure was taken in 1898 when the crop showed very fair results. Too late for average years.

75. *Lacross Seedling* (Salzer). Strong growing potato-leaf variety. Fruit medium size, mostly regular and smooth. Color purplish red.

FIG. 28. A PICKING OF G. A. R.

76. *Ferris Wheel* (Salzer). Growth very heavy. Leaves medium in size. Fruit very large and irregular; also do not ripen evenly. Color purplish red. Undesirable.

78. *The Early Bird* (Johnson & Stokes). Vine long and spreading, with small leaves. Fruit below the average in size, smooth and round. Resembles No. 72; perhaps a little deeper red.

79. *Yellow Prince* (A. W. Livingston & Son, Columbus, Ohio). A rank growth of vines, potato-leaf, and heavy, dense foliage. Fruit medium size, mostly smooth, some irregular. Light yellow in color. Not very promising.

80. *Enormous* (Livingston). Vines strong and spreading with many large leaves. Fruit large, smooth, and round. Color light red. A good variety for specimen fruit.

POTATO REPORT

BY FRANK WM. RANE

The increasing interest shown throughout the state during the past few years in potato culture is sufficient reason for publishing an annual report and keeping up the yearly test.

After publishing the co-operative potato experiments, Bulletin No. 63, "Third Potato Report," the list of varieties in our own test was carefully gone over, and over fifty per cent discarded. The test during the past season contains therefore only those varieties that have proved worthy under our conditions of culture. A few of the higher numbers are new introductions, or have been grown at the station but for a single season, and therefore are continued in this season's test.

The cultural directions for the past season were practically the same as previous seasons. These have been fully explained in the earlier bulletins; also, illustrations of each of the varieties are given therein. There are some of these reports still on hand and may be had for the asking.

The past season was extremely dry during the fore part, and the tubers started very slowly. Where there was sufficient moisture, however, they did well and produced very heavy crops. In many places the fields planted looked very ragged, due to the comparatively few hills that grew. Even under these conditions, however, the returns in most cases were very fair, for on the whole the tubers averaged a good size, there being but very few small ones. It was a prevailing expression of all potato growers after harvesting their crops that they were surprised in their large yield of fine tubers.

There have doubtless never been finer displays of potatoes at the fairs than during the past fall. Not only were there fine specimens but many varieties. The numerous local town or grange fairs are doing much to educate farmers about varieties of all kinds. At present there are fine exhibits, especially of potatoes, containing a large list of varieties at nearly every fair.

The results of our variety tests are shown in the accompanying table. In the last two columns can be seen the rate of yield, not only for the past year but the average for the past three potato seasons, which leaves out the wet season of 1897.

We have a limited quantity of the varieties named, a few bushels only of each variety; therefore, we cannot offer them for distribution. If there are any persons who desire but a few tubers of any one or a number of the varieties for purposes of testing or making exhibits at fairs we shall be pleased to accommodate them, provided they will pay for transportation and for the time required to put them up for shipment. Should any in the list asked for become exhausted we will reserve the right of substitution. Where possible we would prefer to send by express, advancing the charges. No seed will be sent out after April 30.

TABLE III.—VARIETIES GROWN IN 1899.

Number.	Variety.	Condition of top September 18.	Large.	Small.	Yield per acre.	Color.	Average yield for 3 years.	Order of largest yield.	
								Past season.	Past 3 yrs.
			lbs.	lbs.	bu.		bu.		
1	Uncle Sam	Green	22.0	2.8	189.3	W	223	41	37
2	American Wonder	Quite green	42.0	2.8	285.0	"	286	20	21
4	Blush	Green	32.3	2.8	263.2	"	*280	25	25
10	Carman No. 1	Partly mature	38.5	3.7	317.1	"	†280	11	24
11	Carman No. 3	Fairly mature	38.5	1.5	300.4	"	269	15	26
16	Country Gentleman	"	48.5	4.1	395.4	"	316	4	8
17	Delaware	"	34.2	1.6	268.8	"	242	24	32
18	Dewdrop Rose	Mature	29.1	4.6	253.5	R	295	30	18
24	Early Six-weeks	"	16.9	5.2	198.5	"	214	38	39
31	Good News	"	27.2	5.7	247.3	W	182	33	44
36	Harvest Queen	Fairly mature	32.2	4.7	277.7	"	315	22	10
38	Honeoye Rose	Mature	28.1	4.8	250.3	R	230	31	35
40	Irish Daisy	"	30.4	1.2	237.4	W	179	34	45
43	Late Puritan	Fairly mature	51.7	4.6	449.4	"	384	1	1
44	Leonard's Favorite	Mature	26.1	4.6	231.0	R	241	35	34
45	Maggie Murphy	"	29.5	4.4	257.1	"	229	29	36
47	Mills' Endurance	Quite green	22.5	2.1	184.9	W	152	42	46
50	Orphan	Green	40.6	1.8	301.4	"	304	14	15
52	Polaris	Mature	15.8	1.1	127.3	"	210	45	41
53	Peerless, Jr	"	43.8	.8	334.9	"	263	9	27
57	Quick Crop	"	36.3	6.6	289.2	R	291	19	20
58	Reeve's Rose	"	36.1	2.9	293.3	"	364	16	2
61	Rutland Rose	Fairly mature	55.6	3.0	439.5	"	296	2	17
62	R. N. Y. No. 2	"	33.8	3.8	282.3	W	253	21	30
64	Seneca Beauty	Quite green	39.4	2.4	313.7	R	331	12	4
65	Sir William	Fairly mature	37.2	3.5	305.2	W	329	13	5
66	Somerset	Mature	33.5	1.9	267.6	R	275	24	26
70	Vaughan	Nearly mature	19.2	6.0	170.5	"	305	44	14
71	Vick's Advancer	Mature	27.3	5.8	249.3	W	241	32	33
74	White Rose	"	33.7	2.9	274.6	"	294	23	19
75	Wilson's First Choice	Green	40.8	3.3	330.9	"	312	10	12
76	Woodhull's Seedling	Mature	25.0	2.9	210.6	"	282	36	23
80	Governor Rush	Quite green	31.9	2.7	260.6	R	285	27	22
81	Sir Walter Raleigh	Mature	43.0	2.6	342.3	W	307	8	13
84	Livingston	Very green	42.4	3.4	343.8	R	247	7	31
86	Fill Basket	Quite green	53.4	4.1	431.8	W	357	3	3
87	Breck's Chance	Mature	43.6	.7	362.4	R	325	5	7
88	Prolific Rose	"	33.4	3.0	290.0	"	301	18	16
93	Burrn's No. 1	"	23.7	1.8	194.7	W	254	39	29
95	Virgirosa	"	23.3	1.9	189.3	R	259	40	28
99	Red American Wonder	"	33.8	1.1	262.1	"	*315	26	11
101	White Beauty	"	32.5	1.8	258.0	W	327	28	6
102	Enormous	Fairly mature	46.7	.5	358.1	"	321	6	9
103	Early Dawn	Mature	22.2	2.2	183.5	R	217	43	38
104	Early Andes	"	14.7	1.3	121.0	"	196	46	43
105	Granite State	"	36.5	2.1	290.4	W	212	17	40
106	Twentieth Century	Partly green	26.8	1.2	201.6	"	†202	37	42

* Two years. † One year.